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# Resignation Calls and Ministerial Terminations in Latin American Presidential Democracies

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# Introduction

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# Introduction

My research question is: **How do resignation calls affect cabinet reallocations and dismissals of ministers in Latin American presidential democracies?**

I use a combination of a presidential **protection policy** and a **dismissal rule**: The president protects ministers subjected to a first questioning but, because they are then contaminated, the probability of ministerial termination increases as from a second call for their resignation.

- Archival review of press reports in 12 LA countries (mid-1970s-2021), compiling a dataset on ministerial turnover and resignation calls.
- Data mining (OCR) and machine learning and then a semiparametric approach of competing risks and PS matching.

## Theory and Empirical Expectations

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## Protection Policy and Dismissal Rule

To limit agency problems, the president could apply a combination of protection policy and a dismissal rule, borrowed from the rules modelled for parliamentary systems by Dewan and Myatt (2007, 2010; see also Berlinski et al., 2010).

The protection policy considers that ministers can be: (1) **tainted** by having been affected by a scandal or (2) have a record **clean of questioning**.

- If a tainted minister is again affected by a scandal, dismissal should be highly probable (limiting moral hazard).
- A minister with a clean record should be protected by the principal to encourage political activism (limiting agency loss).

## Protection Policy Expectation

The first resignation call should serve as a warning for the minister to improve their performance rather than as an immediate threat to their position. This protection policy should have two outcomes: the retention of the questioned ministers or their reallocation to a different portfolio.

Thus, my first hypothesis is:

- **Protection Policy Hypothesis.** The first call for a minister's resignation raises the probability of reallocation, but not of individual terminations.

## Dismissal Rule Expectation

If ministers whose resignation has already been called for are involved in a new scandal, the president could activate the dismissal rule.

The dismissal of a tainted minister could operate as a positive signal in the chain of delegation between voters and the president ([Dewan and Dowding, 2005](#)). In addition, dismissing tainted ministers could be a way to limit moral hazard by demonstrating that officeholders' actions are not insulated from negative consequences. Accordingly, the empirical expectation is:

- **Dismissal Rule Hypothesis.** The second and subsequent calls for a minister's resignation raise the probability of individual terminations, but not of reallocations.

## Moderation Analysis

I focus on tainted ministers and test the reliability of the dismissal rule under two conditions: **nonpartisanship** and **seniority** of ministers.

First, the appointment of nonpartisan ministers indeed operates as a strategy for dealing with the agency problems, such as agency loss, information asymmetries and moral hazard, that can occur when the agent is a partisan minister (Altman, 2000; González-Bustamante, 2022; Martínez-Gallardo and Schleiter, 2015).

Second, by appointing and protecting more technically skilled cabinet members, presidents should achieve good public policy outcomes and send positive signals to the electorate (electoral accountability literature; see for example Besley and Case, 2003).

## Empirical Strategy

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## Cases and Data Gathering

I combined the Tesseract Optical Character Recognition (**OCR**; see [Ooms, 2021](#)) with different **semi-supervised machine learning models** to distinguish between resignation calls and other mentions of cabinet members in the press. This was applied to **46 years** of **Latin American Weekly Report (LAWR) archives**.



# Tesseract Optical Character Recognition



## How Domingo Cavallo rose to become Menem's virtual prime minister

Argentina are still hotly debating what lay behind the sudden resignations of both President Raúl Alfonsín and his replacement, Domingo Cavallo, and the rapid, uncontrolled uprising of the dollar rate – dismissed as suffi-

cient reason for the former to leave. One that seems to fit is that González had several times threatened to resign at Menem – and, according to sources with access to the situation, would one day accept it. However, a widely accepted version is that Menem, who has been trying to appear Cavallo as his economy-minister, to provide over the period of his mandate, has been able to do so. It would follow a first phase of stabilisation. In this scenario, all González did was to choose his own timing.

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cient reason for the former to leave.

It was at this point, the scenario goes, that Cavallo bolstered himself by making a series of demands, shaken by a series of events he had not bargained with. These included the need to be able to organise the share-out of key ministerial posts and even to appoint men of his own persuasion towards his decision to pardon the military leaders of the 'dirty war' of 1976. The scenario also includes the accusation of corruption in the highest reaches of the government, and the need to be designated as Menem's Vice-President. Cavallo, it is said, has replaced even Senator Eduardo Menem, the President's brother, as Menem's most trusted adviser.

Many expect Cavallo to push for

an agreement with the main opposition party, Raúl Alfonsín's Union of Democratic Centre (UDC).

The UDC, which has been instrumental in the manoeuvring to engineer Menem's departure from the Presidency, has been able to do so. It has been able to do so because of the many prominent politicians and businessmen, and even US diplomats, have been exploring since late 1990. ■

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| PERU: Weather spreads cholera epidemic. (2)      | VENEZUELA: Lower prices force budget re-think. (2)   |
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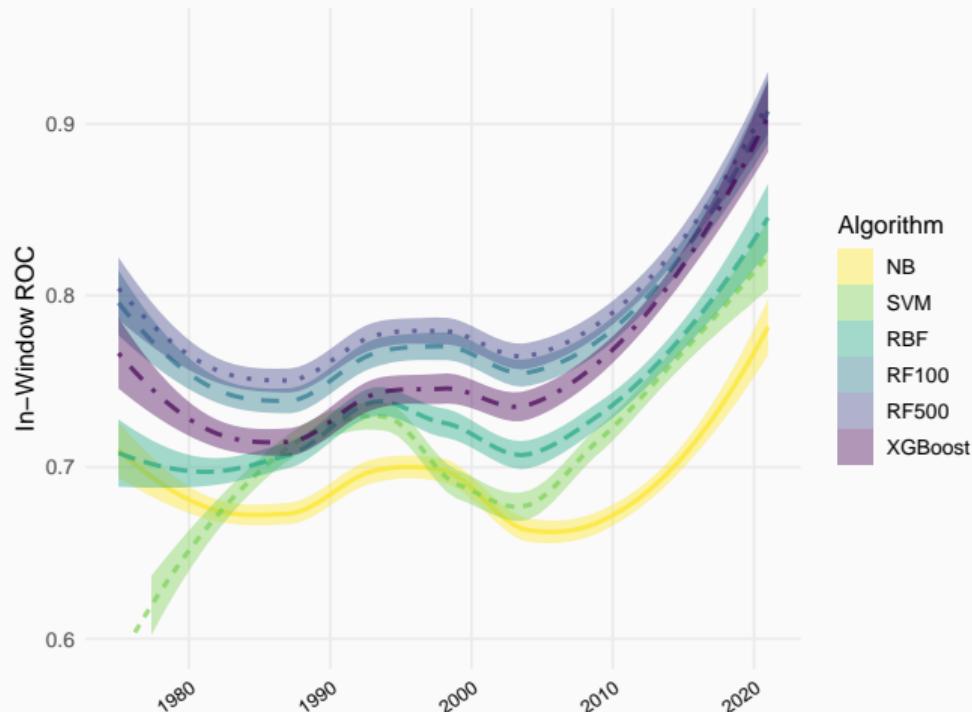
It was at this point, the scenario goes, that Cavallo bolstered himself by making a series of demands, shaken by a series of events he had not bargained with. These included the need to be able to organise the share-out of key ministerial posts and even to appoint men of his own persuasion towards his decision to pardon the military leaders of the 'dirty war' of 1976. The scenario also includes the accusation of corruption in the highest reaches of the government, and the need to be designated as Menem's Vice-President. Cavallo, it is said, has replaced even Senator Eduardo Menem, the President's brother, as Menem's most trusted adviser.

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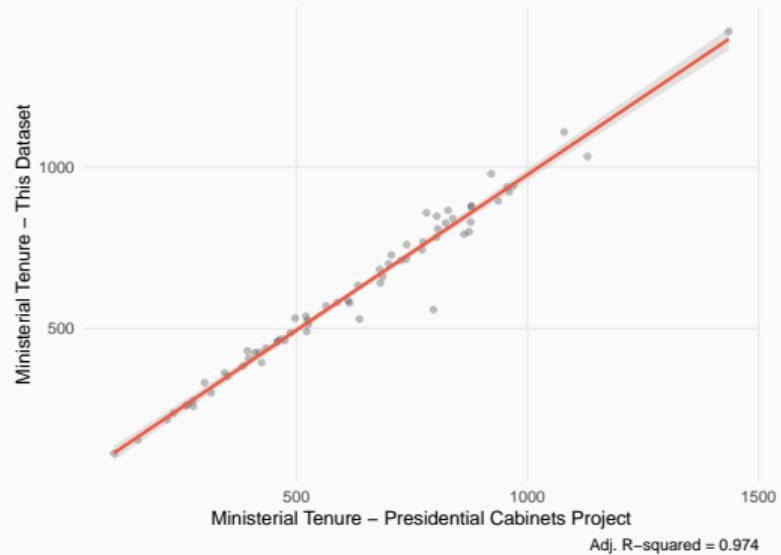
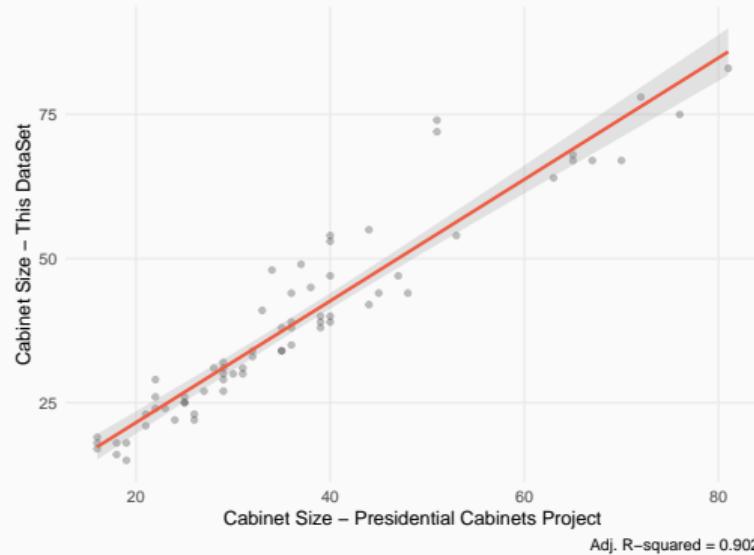
# Goodness-of-Prediction of Semisupervised Models (1975-2021)



Following Greene et al. (2019), I trained semi-supervised models using a **five-year fixed rolling window** from 1975 to 2021 to train algorithms and predict resignation calls.

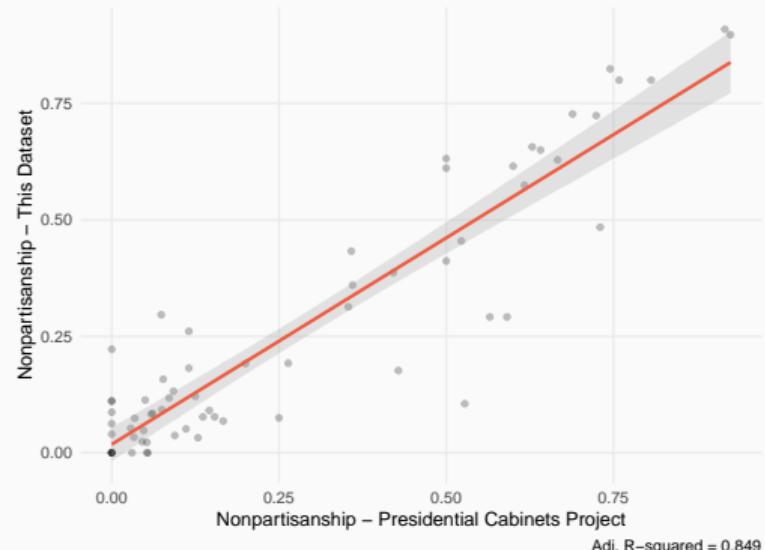
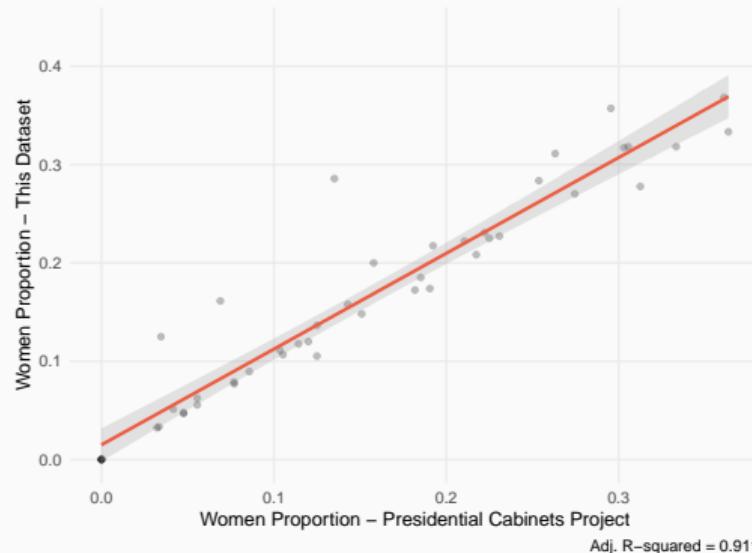
Random Forest classifiers with 500 trees 10-fold cross-validated.

# Cross-Validation against Similar Datasets



Note. Concurrent presidential terms were used for comparisons with the Presidential Cabinet Project (see Camerlo and Martínez-Gallardo, 2020).

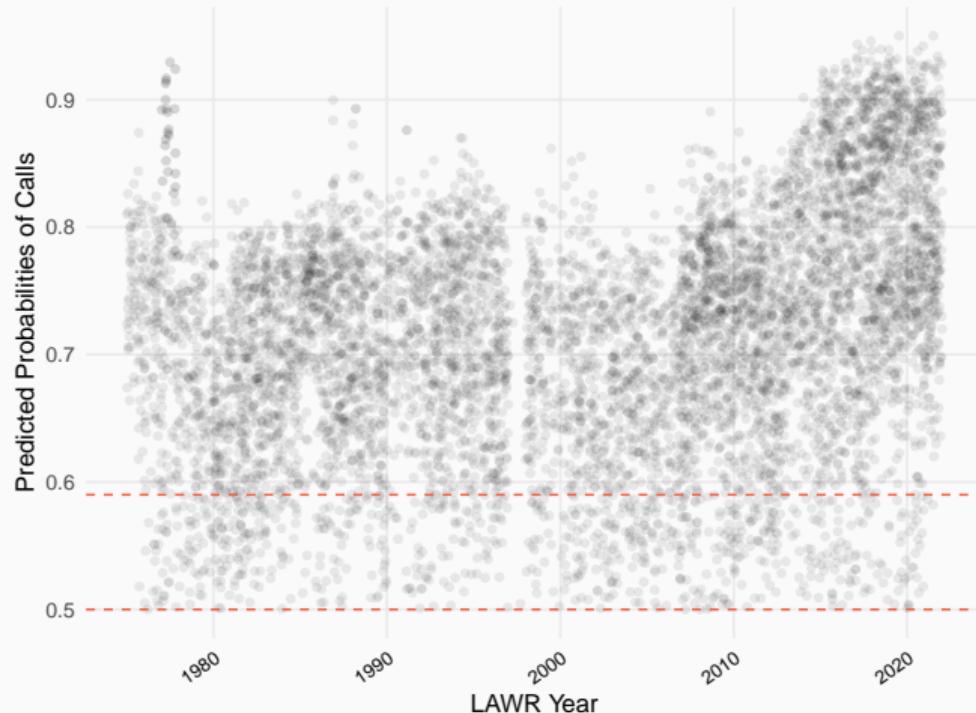
# Cross-Validation against Similar Datasets



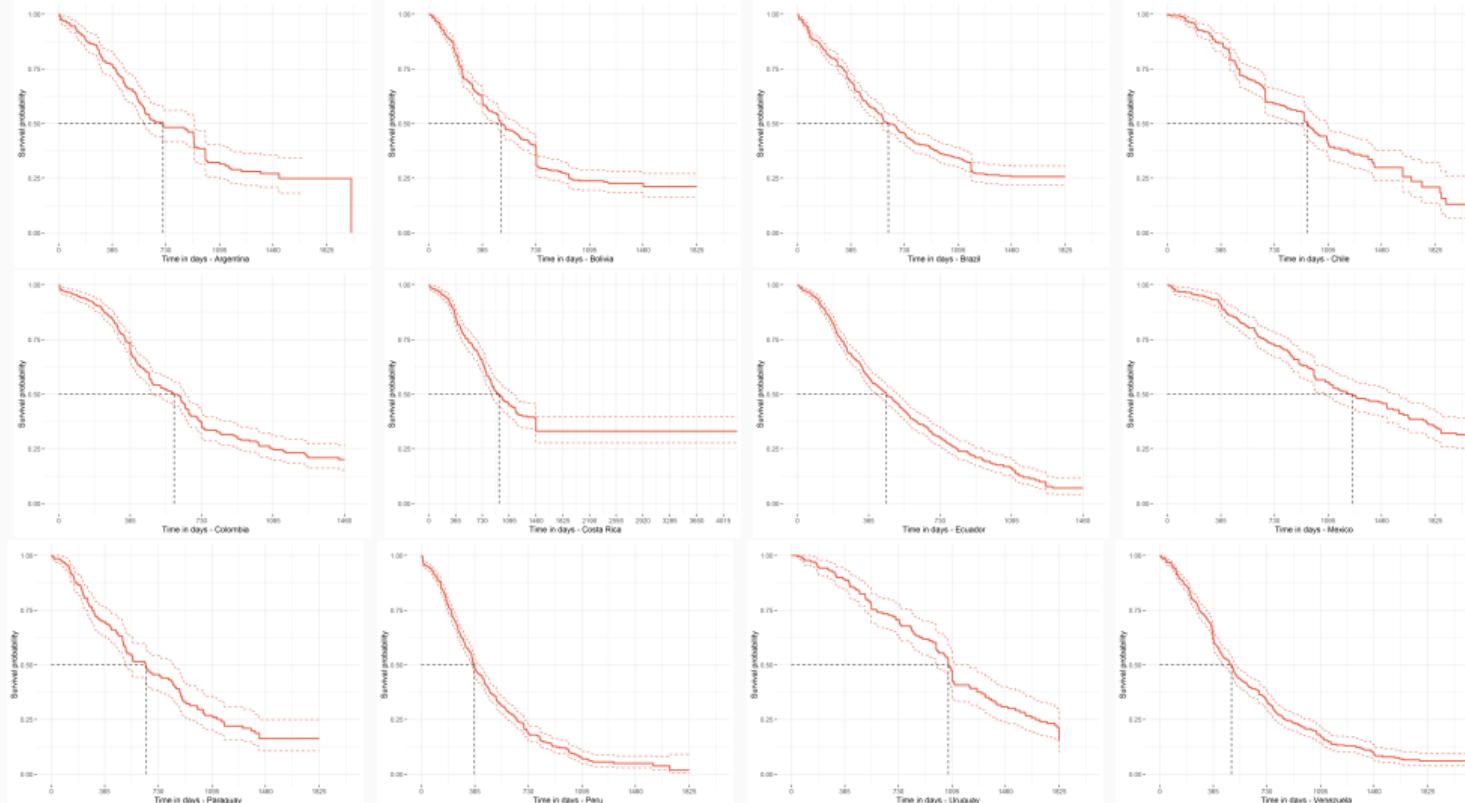
Note. Concurrent presidential terms were used for comparisons with the Presidential Cabinet Project (see Camerlo and Martínez-Gallardo, 2020).

# Augmented Artificial Intelligence (A2I)

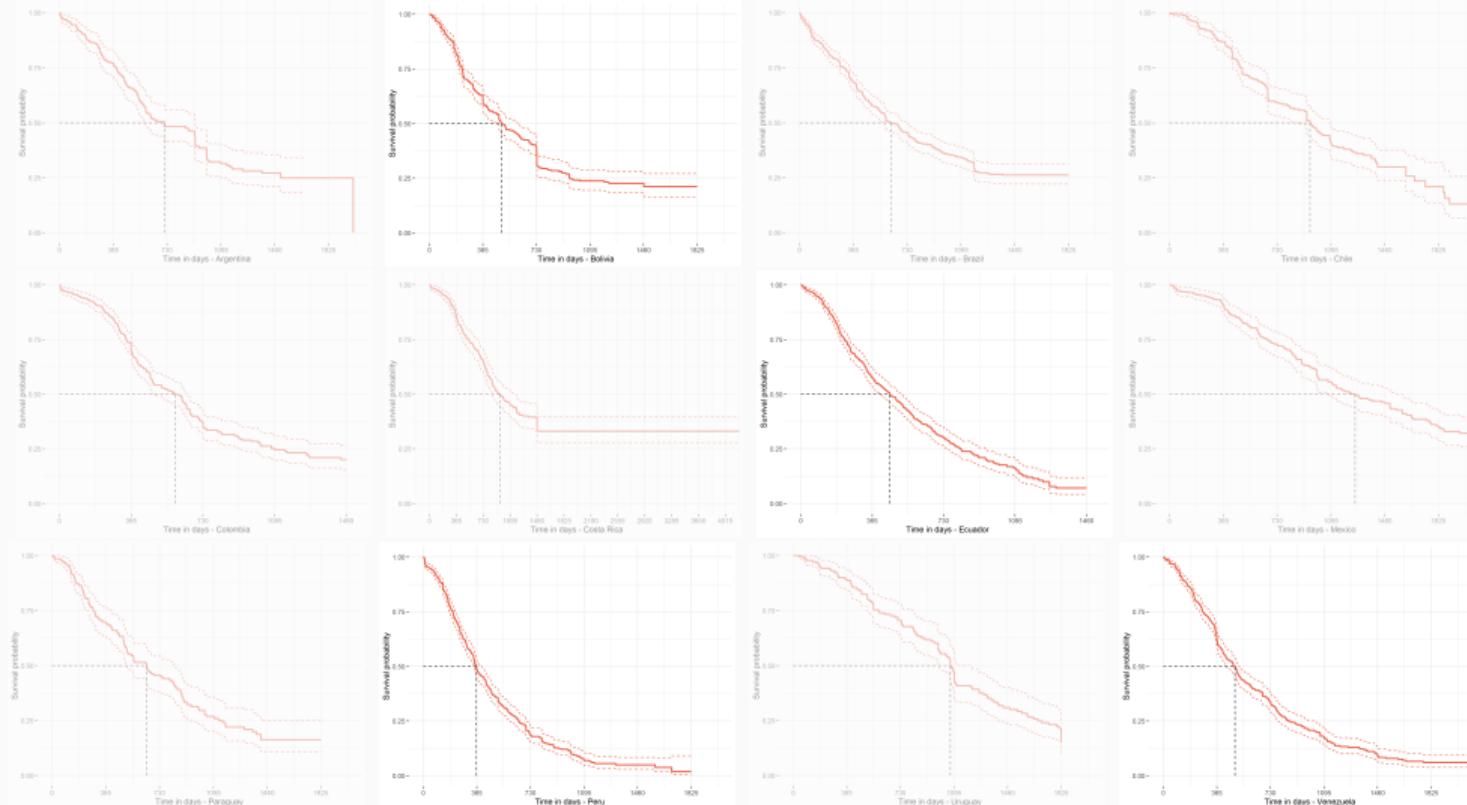
I performed an augmented artificial intelligence process based on a **human review** of the predicted observations with low confidence values to improve the data's quality.



# Kaplan-Meier Survival Estimations in 12 Presidential Cabinets



# Kaplan-Meier Survival Estimations in 12 Presidential Cabinets



## Time-Dependent Data Encoding

The dataset was **time-dependent encoded** using monthly intervals with the (start, stop] model (Therneau et al., 2020). This allowed us to incorporate **time-varying covariates**.

We observe the time events  $T$  considering monthly intervals and  $k$ -th **competing risks**  $Y_{k[i]}$  for **reallocations** ( $k = 1$ ) and **individual ministerial terminations** ( $k = 2$ ) by constructing the monthly intervals  $Z(t) = I(t > Y_{k[i]})$ .

I then used the closed interval of  $i$ -th observations (officeholders) as an endpoint in a function for multi-state survival variables obtaining an outcome dataset to control competing risks with **Fine-Gray weights** (Fine and Gray, 1999; Therneau et al., 2022).

## Propensity Score and NNM

I distinguish  $D_{j[i]}$  as **1st resignation call** ( $j = 1$ ) and the **2nd or subsequent ones** ( $j = 2$ ). Consequently, I regress  $D_{j[i]}$  on a vector of covariates and potential confounders  $X_{m[i]}$  that considers quadratic presidential term patterns dummies and type of ministry, using probit models.

I also incorporated country FE and Fine-Gray weights  $w_1$ . This is our **naive propensity score estimation**:

$$D_{j[i]} = \varphi \left[ \alpha + \sum_{m=1}^M \gamma_m w_{1[i]} X_{m[i]} + \zeta w_{1[i]} \text{country}_i + \varepsilon_i \right] \quad (1)$$

## Propensity Score and NNM

Then, I expanded our PS estimation by incorporating **additional confounders** to  $X_{m[i]}$  to **block the backdoor path**. I favour the incorporation of covariates that can affect the presidential decision (protect/dismiss), as well as calls:

- Presidential leverage (control of the relevant Houses)
- Opposition fragmentation\*
- Government fragmentation\*
- Government type (single-party vs. coalition)
- Presidential re-election
- Cumulative level of resignation calls\*\*

\* probability that two randomly selected deputies belong to different parties.

\*\* to improve precision since it could be a competing exposure rather than a confounder.

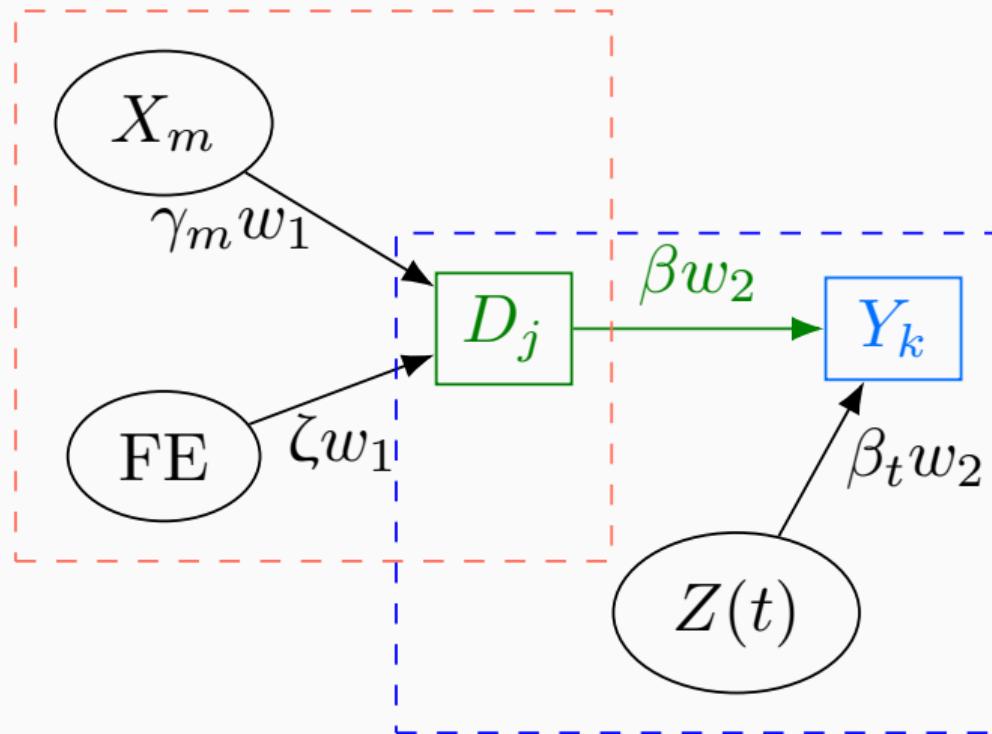
## Competing Risks Models

After matching, the outcome analyses were carried out in the different matched samples with Fine-Gray subdistribution hazard models to estimate the **ATT for observational studies**, that is, the effect on ministers who received resignation calls.

The models regressed  $Y_{k[i]}$ , where  $k = 1$  for **reallocations** and  $k = 2$  for **dismissals**, on resignation calls indicators  $D_{j[i]}$ , using PS weights  $w_2$  and  $Z(t)$  intervals:

$$\lambda_k(t_i) = \lambda_{0[k]}(t_i) \exp \left[ \beta_t w_{2[i]} Z_i(t) + \beta w_{2[i]} D_{j[i]} + \varepsilon_i \right] \quad (2)$$

# Nonparametric Graphical Representation



## Results

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# Estimating the Protection Policy

|                         | Reallocations |            | Ind. Terminations |            |
|-------------------------|---------------|------------|-------------------|------------|
|                         | Model I       | Model II   | Model III         | Model IV   |
| First resignation call  | 1.934*        | 3.304***   | 1.089***          | 1.628***   |
|                         | (1.068)       | (1.081)    | (0.351)           | (0.502)    |
| Matching Estimand       | NNM<br>ATT    | NNM<br>ATT | NNM<br>ATT        | NNM<br>ATT |
| Competing risk          | Ind. Term.    | Ind. Term. | Realloc.          | Realloc.   |
| PS weights              | Fine-Gray     | Fine-Gray  | Fine-Gray         | Fine-Gray  |
| Weights outcome         | No            | PS         | No                | PS         |
| Nonpartisanship         | No            | PS         | No                | PS         |
| Seniority               | No            | PS         | No                | PS         |
| Control of Houses       | No            | PS         | No                | PS         |
| Opp. fragmentation      | No            | PS         | No                | PS         |
| Gov. fragmentation      | No            | PS         | No                | PS         |
| Type of government      | No            | PS         | No                | PS         |
| Re-election permitted   | No            | PS         | No                | PS         |
| Cumulative gov. calls   | No            | PS         | No                | PS         |
| Quadratic term patterns | PS            | PS         | PS                | PS         |
| Type of ministry        | PS            | PS         | PS                | PS         |
| Country FE              | PS            | PS         | PS                | PS         |
| Obs. clustering         | PS/Yes        | PS/Yes     | PS/Yes            | PS/Yes     |
| Log-Rank                | 4.430**       | 4.069**    | 10.785***         | 12.213***  |
| AIC                     | 123.542       | 106.566    | 690.058           | 475.164    |
| C-Index                 | 0.676         | 0.690      | 0.614             | 0.653      |
| N                       | 10,143        | 9,900      | 8,884             | 6,580      |
| Log Likelihood          | -60.771       | -52.283    | -344.029          | -236.582   |

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

I reject the **Protection Policy Hypothesis** as there is no evidence to suggest that the first call alone increases the probability of a minister being repositioned.

Although we reject this hypothesis, we found (novel empirical) evidence that reallocations and individual terminations are competing risks at the early stage of public questioning.

# Estimating the Dismissal Rule

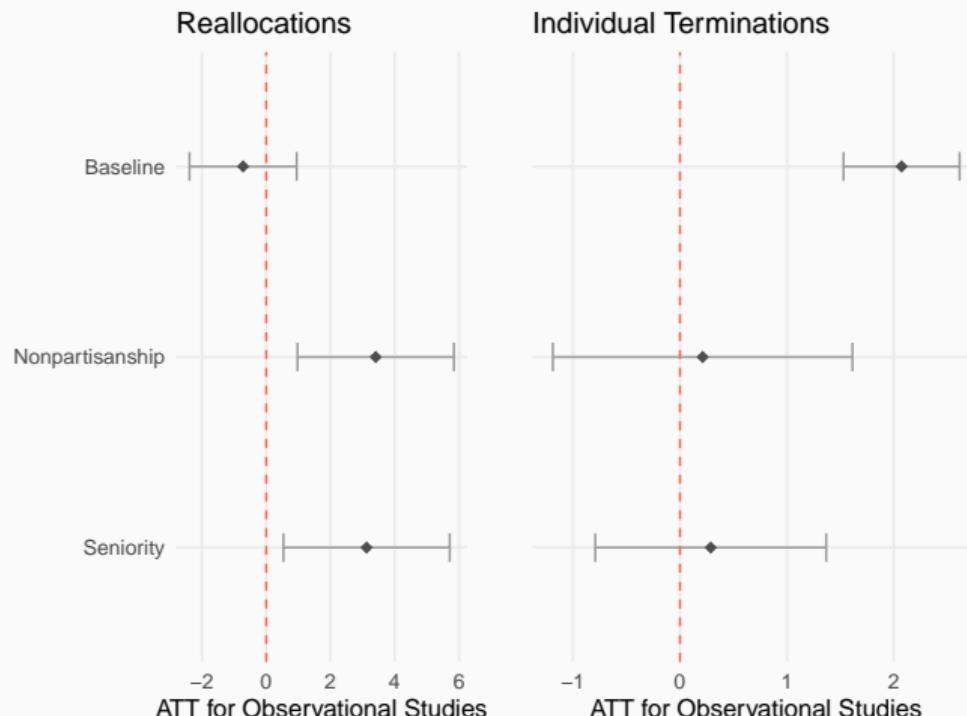
Model IV with the block of confounders has an estimated ATT of 2.073. This implies the risk of a minister's removal increases eightfold.

These results confirm the **Dismissal Rule Hypothesis**.

|  | Reallocations    |                   | Ind. Terminations   |                     |
|--|------------------|-------------------|---------------------|---------------------|
|  | Model I          | Model II          | Model III           | Model IV            |
| Second or subsequent resignation calls | 1.099<br>(0.744) | -0.729<br>(0.851) | 1.329***<br>(0.283) | 2.073***<br>(0.277) |
| Matching                               | NNM              | NNM               | NNM                 | NNM                 |
| Estimand                               | ATT              | ATT               | ATT                 | ATT                 |
| Competing risk                         | Ind. Term.       | Ind. Term.        | Realloc.            | Realloc.            |
| PS weights                             | Fine-Gray        | Fine-Gray         | Fine-Gray           | Fine-Gray           |
| Weights outcome                        | No               | PS                | No                  | PS                  |
| Nonpartisanship                        | No               | PS                | No                  | PS                  |
| Seniority                              | No               | PS                | No                  | PS                  |
| Control of Houses                      | No               | PS                | No                  | PS                  |
| Opp. fragmentation                     | No               | PS                | No                  | PS                  |
| Gov. fragmentation                     | No               | PS                | No                  | PS                  |
| Type of government                     | No               | PS                | No                  | PS                  |
| Re-election permitted                  | No               | PS                | No                  | PS                  |
| Cumulative gov. calls                  | No               | PS                | No                  | PS                  |
| Quadratic term patterns                | PS               | PS                | PS                  | PS                  |
| Type of ministry                       | PS               | PS                | PS                  | PS                  |
| Country FE                             | PS               | PS                | PS                  | PS                  |
| Obs. clustering                        | PS/Yes           | PS/Yes            | PS/Yes              | PS/Yes              |
| Log-Rank                               | 2.444*           | 4.386**           | 24.698***           | 35.444***           |
| AIC                                    | 422.574          | 622.115           | 3,292.559           | 3,149.094           |
| C-Index                                | 0.566            | 0.595             | 0.573               | 0.595               |
| N                                      | 30,422           | 31,250            | 21,511              | 21,905              |
| Log Likelihood                         | -210.287         | -310.058          | -1,645.279          | -1,573.547          |

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

# Moderation Analysis



The effect of resignation calls on the probability of reallocation is more substantial.

The estimated effects are not significant for individual termination in the case of non-partisanship ( $p = 0.766$ ) or seniority ( $p = 0.602$ ), confirming a protection strategy.

# Placebo Models

I repeated the primary models with resignation calls altered  $\tilde{D}_{j[i]}$  with the aim of applying a placebo test.

The **absence of a significant ATT** in most models tends to confirm the main results.

|                                       | Reallocations     |                   | Ind. Terminations |                   |
|---------------------------------------|-------------------|-------------------|-------------------|-------------------|
|                                       | Model I           | Model II          | Model III         | Model IV          |
| Placebo<br>(press mentions)           | -0.129<br>(0.766) |                   | 0.678<br>(0.480)  |                   |
| Placebo<br>(unrelated press mentions) |                   | -0.543<br>(0.523) |                   | -0.627<br>(0.385) |
| Matching                              | NNM               | NNM               | NNM               | NNM               |
| Estimand                              | ATT               | ATT               | ATT               | ATT               |
| Competing risk                        | Ind. Term.        | Ind. Term.        | Realloc.          | Realloc.          |
| PS weights                            | Fine-Gray         | Fine-Gray         | Fine-Gray         | Fine-Gray         |
| Weights outcome                       | PS                | PS                | PS                | PS                |
| Nonpartisanship                       | PS                | PS                | PS                | PS                |
| Seniority                             | PS                | PS                | PS                | PS                |
| Control of Houses                     | PS                | PS                | PS                | PS                |
| Opp. fragmentation                    | PS                | PS                | PS                | PS                |
| Gov. fragmentation                    | PS                | PS                | PS                | PS                |
| Type of government                    | PS                | PS                | PS                | PS                |
| Re-election permitted                 | PS                | PS                | PS                | PS                |
| Cumulative gov. calls                 | PS                | PS                | PS                | PS                |
| Quadratic term patterns               | PS                | PS                | PS                | PS                |
| Type of ministry                      | PS                | PS                | PS                | PS                |
| Country FE                            | PS                | PS                | PS                | PS                |
| Obs. clustering                       | PS/Yes            | PS/Yes            | PS/Yes            | PS/Yes            |
| Log-Rank                              | 0.271             | 7.501***          | 28.984***         | 78.112***         |
| AIC                                   | 2,057.048         | 3,668.754         | 13,331.973        | 26,931.196        |
| C-Index                               | 0.523             | 0.530             | 0.534             | 0.553             |
| N                                     | 108,493           | 180,699           | 81,736            | 134,976           |
| Log Likelihood                        | -1,027.524        | -1,833.377        | -6,664.987        | -13,464.600       |

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

## Robustness Checks

The robustness checks using **additional confounders**, an **alternative matching algorithm** (caliper) and a **special standard error estimator** (Austin and Fine, 2019) show the same patterns as the main analyses.

When incorporating macroeconomic indicators, presidential approval and controlling for low levels of freedom of speech as potential confounders, the results were not altered (**low residual confounding**).

The exclusion of these **stochastic events** was made because I gave priority to the use of **resignation calls** as a noisy but empirically efficient indicator.

## Takeaways

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## Takeaways

- ☑ I offer novel indicators such as **reallocations** and **resignation calls**. In addition, the use of semi-supervised ML models is also an innovation.
- ☑ The theoretical argument is simple: The president protects her ministers in the face of an initial questioning by reallocating them to a new ministry but removes them from the cabinet in the face of further resignation calls. **In a nutshell, it is like in the football.**
- ☑ Combining semiparametric competing risks models and propensity score contributes to tackling the **non-random selection problem** in observational data.
- ☑ The risk of ministerial terminations increases **eightfold** from the second call, but it is **moderated** in the case of nonpartisan and senior ministers.

## Acknowledgements and Funding

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# Thank you very much!

Do you have any questions?

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